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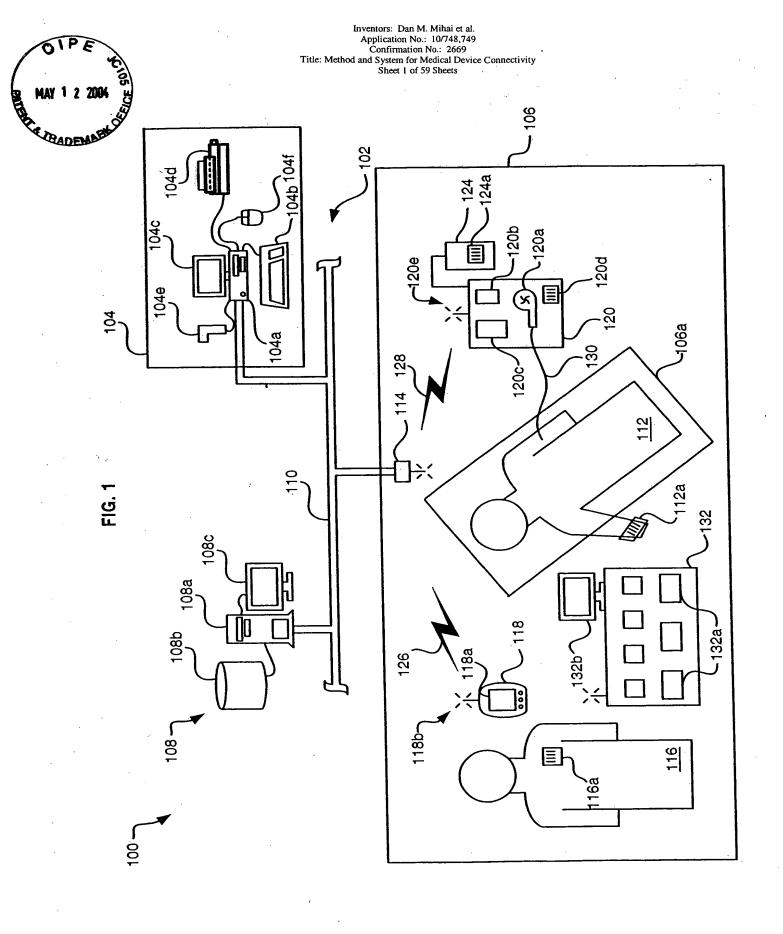
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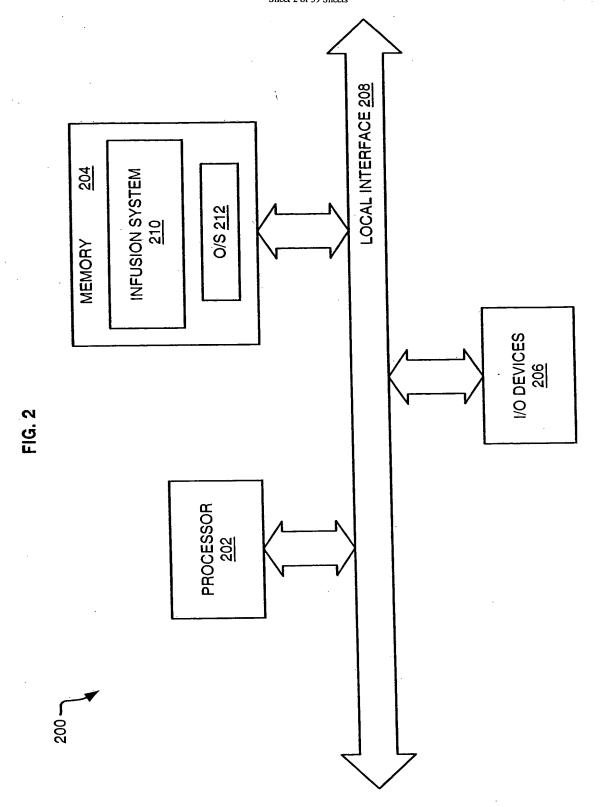
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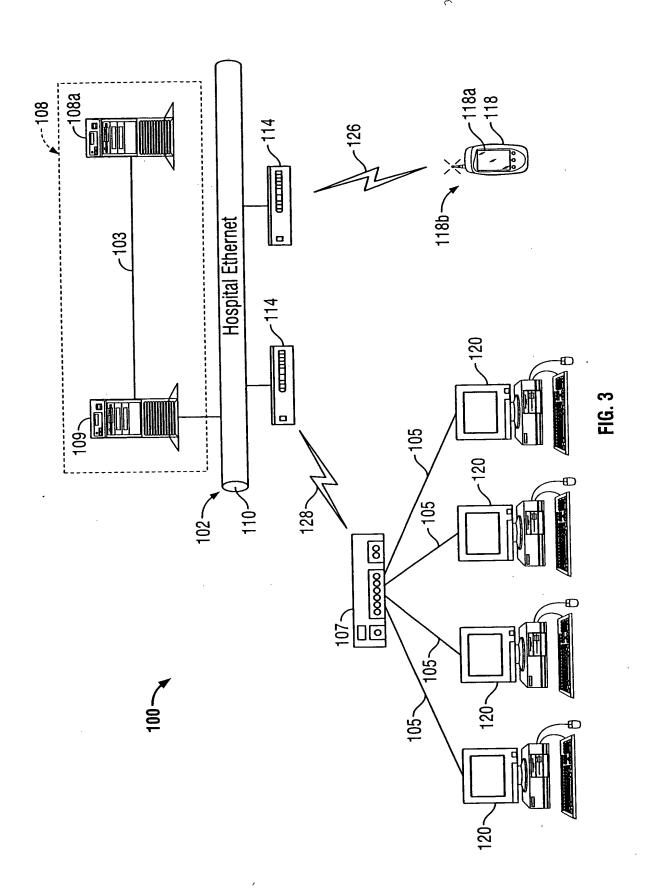
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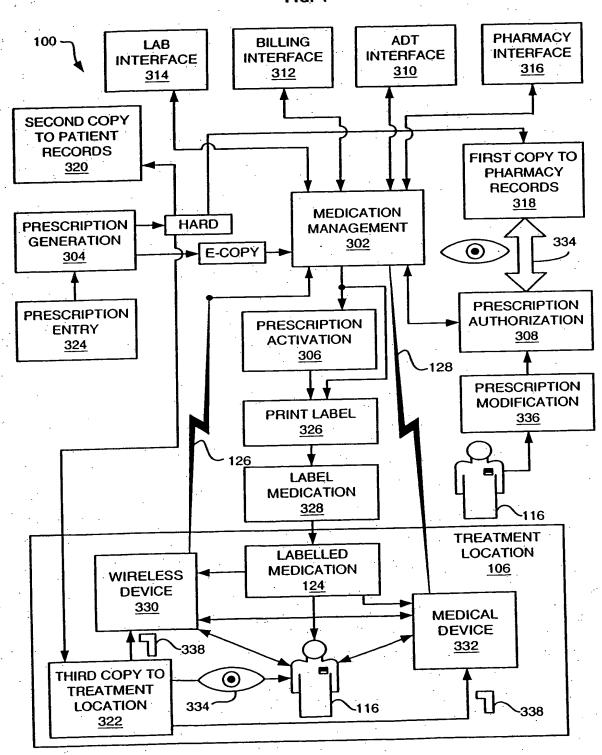


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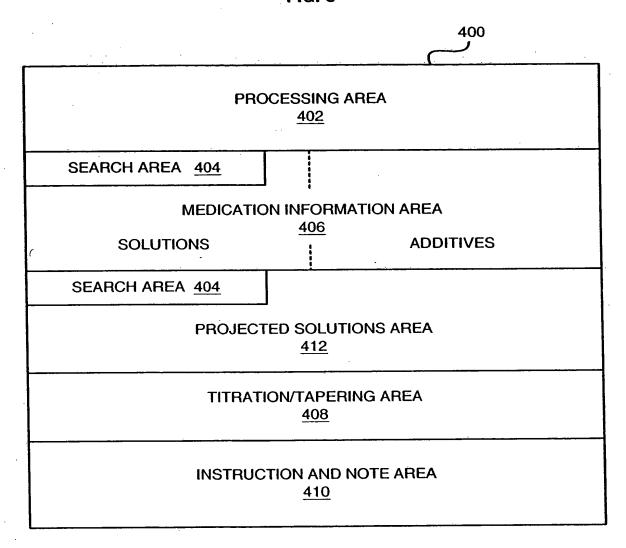






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FIG. 5



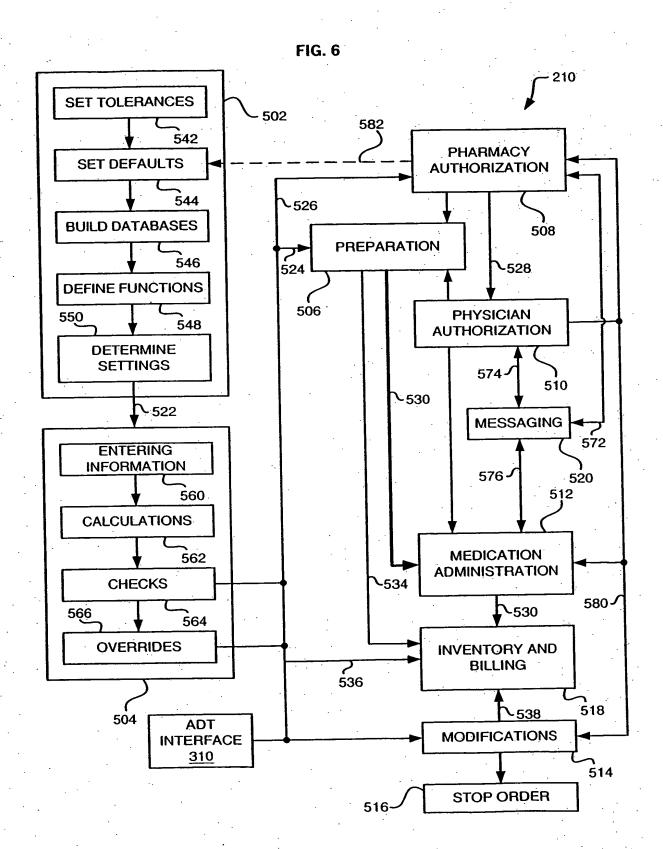


FIG. 7

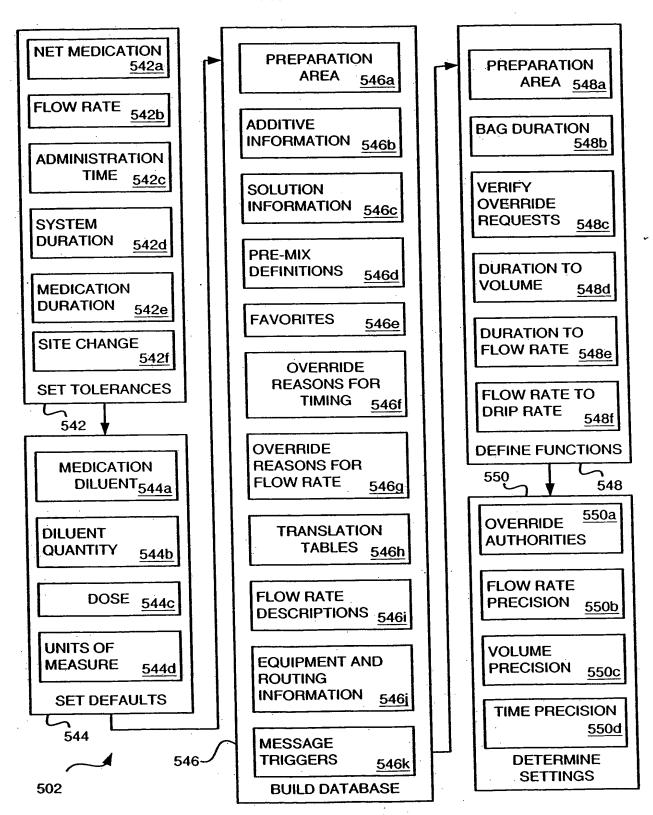


FIG. 8

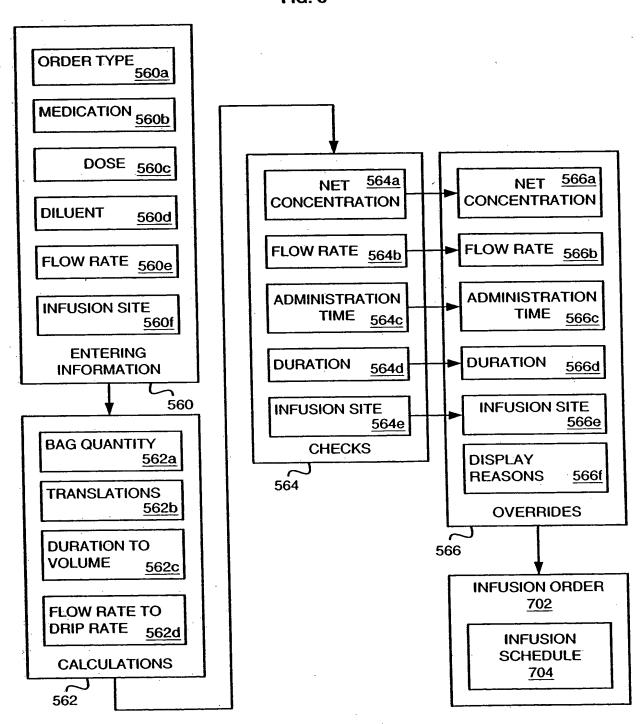


FIG. 9

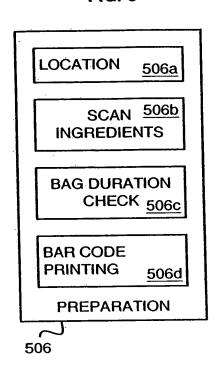
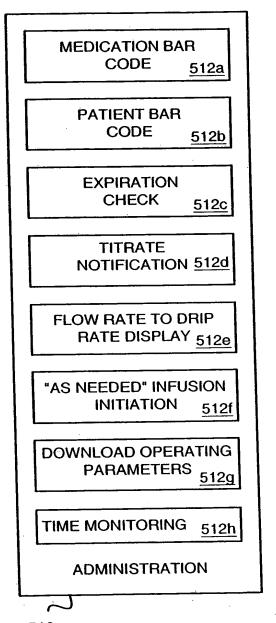
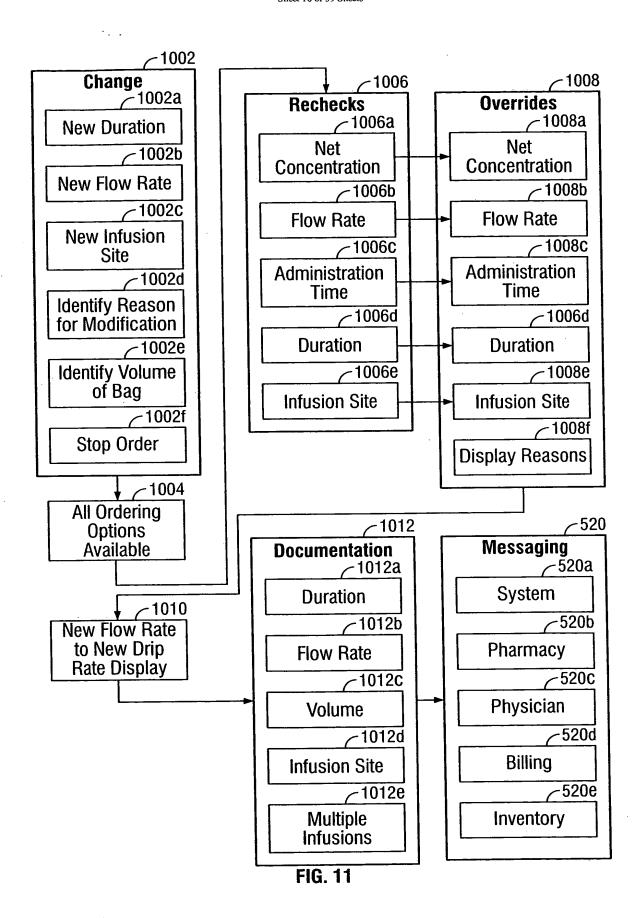
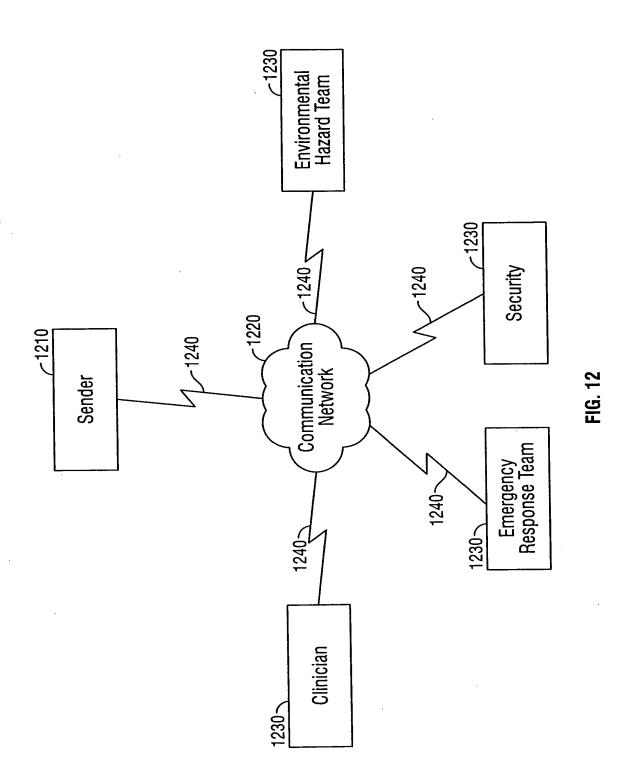


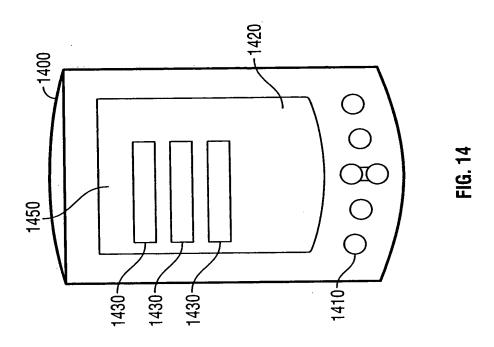
FIG. 10

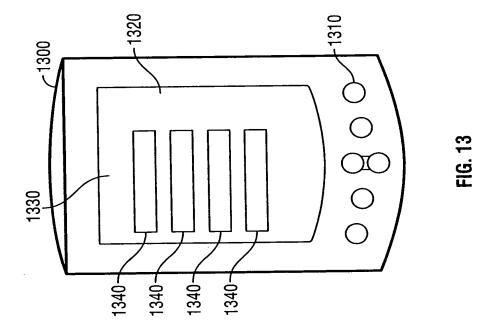


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**FIG. 15** 1500 1505 alarm or alert condition exists at medical device. 1510 1525 send alarm/alert to primary clinician. complete 1515 preconditions check. display alarm/alert 1530 on primary 1520 clinician's display device. is primary Yes clinician's display device active? 1535 start timer. No 1540 1545 does clinician No Yes No respond to alarm is alarm/alert condition rectified? at display device within timer 1550 limit? check Yes preconditions. 1580 send escalated silence audible 1555 alarm/alert to alarm. secondary clinician. 1565 records in event display alarm/alert log: 1. alarm/alert does primary or 1560 on primary and Yes info; 2. clinican secondary secondary clinician 1585 responsible for respond to alarm? clinician's display silencing alarm; device. 3. time of alarm condition; 4. time No of silence response. 1570 continue alarm escalation process 1590 reset timer and for N levels. updates medical

device alarm list.

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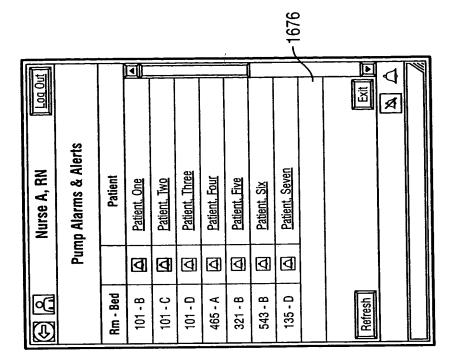


FIG. 16B

FIG. 16A

Exit Log Out 1664 1666 4872 Pump Alarms & Alerts Patient, Two-Patient, Three-Patient, One-Nurse A, RN Patient বা বা ₫ Rm - Bed 101 - D 101 - 8 101 - C

1662a ~\_\_\_

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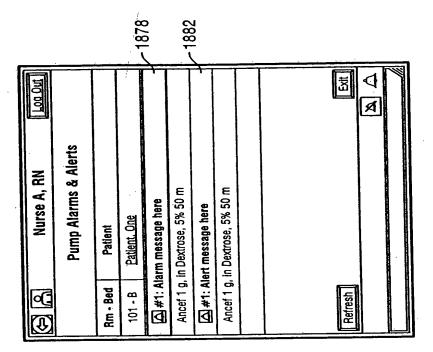


FIG. 18

Rm - Bed Patient
101 - B Patient
Ancef 1 g, in Dextrose, 5% 50 m

Ancef 1 g, in Dextrose, 5% 50 m

Refresh

Refresh

Refresh

Refresh

Refresh

**G.** 17

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Batient Care System

User Name:

Nurse A

Password:

\*\*\*\*\*

Login falled.
Check User Name or Password.

בוני 20

User Name:

User Name:

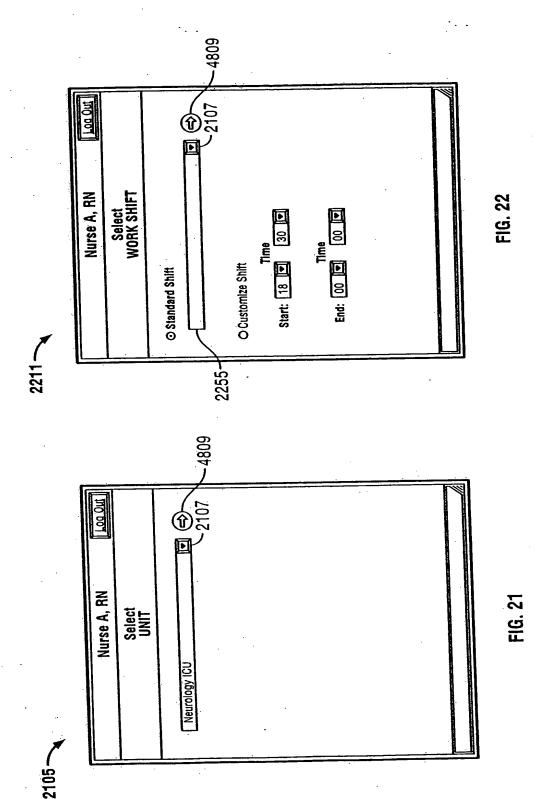
Nurse A

Password:

\*\*\*\*\*\*

<u>G. 19</u>

1903-



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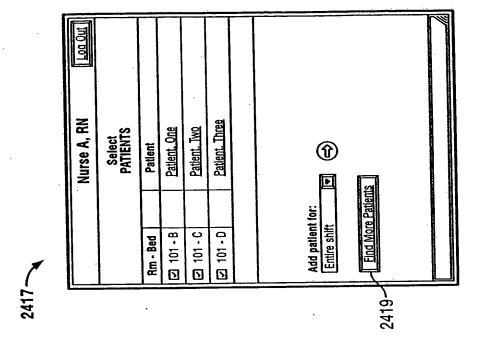


FIG. 24

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85.00 Kg 187.39 Lb Weight Ninety-Three, James RN Ninety Nine, Douglas, Mr. (MDLOC1) |MDUnit1: MDRoom1 - MDBed1 |Dr.Ninety, Susan 183.00 cm 72.05 in. Med Hx Height Mini-Chart: Allergies Allergies & Ht/Wt Date Observed Lab Results General Allergy Acetaminophen 8-22 14:16 Drug Allergy

FIG. 25A

Nurse A, RN Mini-Chart: Allergies (NKA) Patient, One - 101-B Administer Meds/Infusions Remove Patient from Shift

RESUME Infusion

STOP Infusion

Flow Rate Histor

Pump Status

Titrate Infusion

FIG. 25

2521a

Minety-Nine, Douglas, Mr. (MDLOC1)
MDUnitt: MDRoom1 - MDBed1
Dr.Ninety, Susan
Mini-Charl Allergies
Allergies & Ht/Mt Med Hx

Lab Test Result
POTASSIUM 3.1 3.6-5 Normal 9:00:00
mmolyL AM

FIG. 25C

5216

Minety Nine, James RN Log Out Ninety Nine, Douglas, Mr. (MDLOC1)
MDUNIt1: MDRoom1 - MDBed1
Dr. Ninety, Susan
Mini-Charl Allergies (NKA)
Allergies & HtWY Med HX
Lab Results
AII © Scheduled O PRN O
Look Back Period: 24 The hours
Order
Acetaminophen Cap 500 MG
500 MG = 1 CAP
Oral
TID
Admin Date: 6-3 12:53
Patient Refused
TOTEL

Back

FIG. 25B

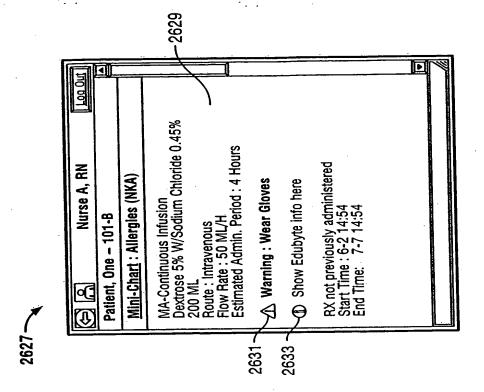


FIG. 26A

2625 - 12:19 -> Continuous Infusion (De Continuous Infusion (De Si Continuous Infusion (De SI MORPHINE SULFATE Continuous Infusion Nurse A, RN Mini-Chart: Allergies (NKA) SCHED 13 Patient, One - 101-B <- 10:19 **①** Med 15:30 17:30 11:30 13:30 ᄪ R K 0 0 D 0

Please select a reason for Stop Infusion

Discontinue order in system Stop Time [M/D/Y HH:MM]

06/18/2003

Ninety-Three, James RN

WORKFLOW INFUSION: STOP Ninety-Six, Samuel, Mr. MDRoom1-MDBed1

Mini-Chart; Allergies

Continuous Infusion
Dextrose Inj 20%
500 ML
Route: Intravenous Flow Rate: 125
ML/H
Estimated Administration Period: 4
Hours

RN Log Out			
Morketow Intervathree, James RN WORKFLOW INFUSION: STOP Ninety-Six, Samuel, Mr. MDRoom1-	Mini-Chart; Allergies	Continuous Infusion Dextrose Inj 20% 500 ML Route: Intravenous Flow Rate: 125 MIL/H Estimated Administration Period: 4 Hours	Order has been DC'd  Back to Patient list

FIG. 27B

727d~

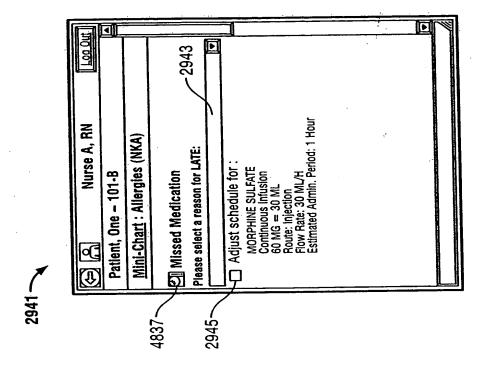
WORKFLOW INTEUSION: RESUME Ninetyfour-Pointlive, Fred, Mr. Ninetyfour-Pointlive, Fred, Mr. MDRoom1 - MDBed1 Mini-Chart: Allergies (Not Specified) Continuous Infusion Dextrose inj 20% 500 Ml. Route: Intravenous Flow Rate: 125 ML/H Estimated Administration Period: 4 Hours Stopped w/o Order Please select a reason for Resume Infusion Site re-established	N [Log Out]			,						
IRKELOW IRROGM1 - II-Chart: Al II-Chart: Al II-Chart: Al II-Chart: Al III-Chart: Al II	-Three, James A	ION: RESUME , Fred, Mr. 1	(Not Specified)		w Rate: Ion Perlod:	ı for Resume				
	<u>C</u>	WORKFLOW INFUSINITIVE Ninetyfour-Pointfive	Mini-Chart: Allergies (	Continuous Infusion Dextrose inj 20% 500 ML	Route: Intravenous Flo 125 ML/H Estimated Administrat 4 Hours	Stopped w/o Order Please select a reasor Infusion	Site re-established	<b>(1)</b>	Back to Patient list	

11G 27D

FIG. 27C

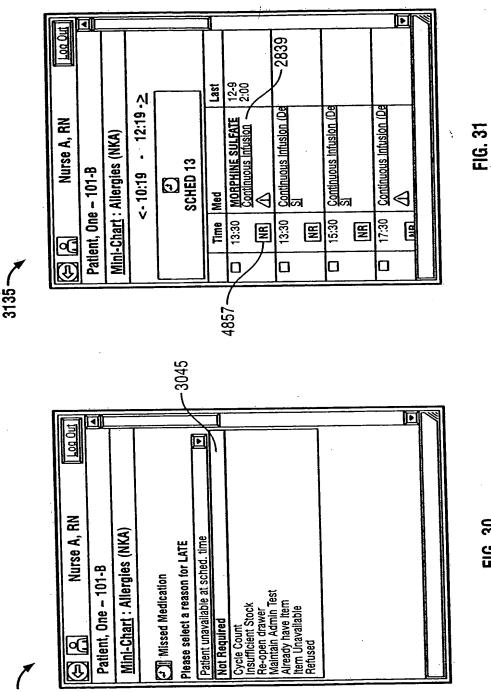
WORKFLOW INFUSION: RESUME
Ninetyfour-Pointlive, Fred, Mr.
MDRoom1 - MDBed1
Mini-Chart; Allergles (Not Specified)
Scan Item: (A)
Scan Item: (A

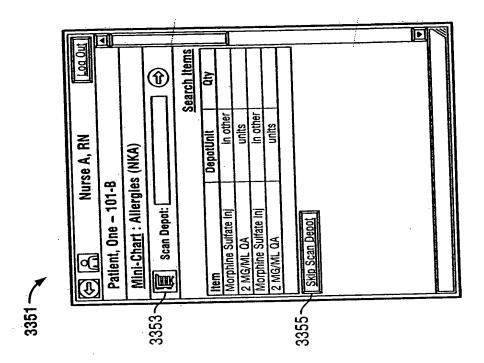
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12-9 2:00 Last <-10:19 - 12:19-> Continuous Infusion (De Continuous Infusion (De Continuous Infusion ( Nurse A, RN Mini-Chart: Allergies (NKA) SCHED 13 Patient, One - 101-B Med 13:30 13:30 15:30 17:30 Time R ស៊ី

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Patient, One – 101-8

Mini-Chart : Allergies (NKA)

Scan code Is invalid.
Scan code Is invalid.
Scan code Is invalid.

Scan code Is invalid.

Scan code Is invalid.

Scan code Is invalid.

Scan code Is invalid.

Scan code Is invalid.

Search Items

Worphine Sulfate Inj in other

2 MG/ML QA units

2 MG/ML QA

2 MG/ML QA

2 MG/ML QA

3 In other

4 In other

5 MG/ML QA

1 In other

6 In other

7 In other

8 In other

9 In other

9 In other

1 In other

1 In other

1 In other

2 MG/ML QA

3 In other

4 In other

5 MG/ML QA

5 In other

6 In other

7 In other

8 In other

9 In othe

FIG. 35

	@ (J)	Nurse A, RN	Log Out	
	Patient, One - 101-B	9 – 101-8		-m
	Mini-Chart	Mini-Chart : Allergies (NKA)		==
	Scan Item:	lem:	<b>(1)</b>	
3467	- MORPHINE SULFATE Continuous Infusion 60 MG = 30 ML Route: Injection Flow Rate: 30 ML/H Estimated Admin. Per	MORPHINE SULFATE Continuous Infusion 60 MG = 30 ML Route: Injection Flow Rate: 30 ML/H Estimated Admin. Period: 1 Hour		
	Quantity: 30 Get: 30 ML	ML(s)		
	<ul> <li>◇ Warning: Wear Gloves</li> <li>① Show Edubyte Info here</li> </ul>	Warning: Wear Gloves Show Edubyte Info here		
	···		<b>\</b>	
				TIT W
				1

**G**. 34

3465

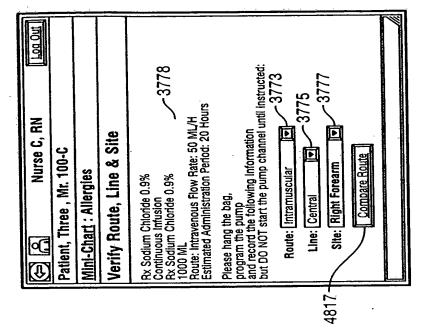


FIG. 37

Patient, One – 101-8

Mini-Chart : Allergies (NKA)

Alfordies (NKA)

3661

If Cannot admin, select a reason:

Refused

Refused

Refused

Befused

Refused

FIG. 36

1657

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Rx Sodium Chloride 0.9%
Continuous Infusion
Rx Sodium Chloride 0.9%
1000 ML
Route: Intravenous Flow Rate: 50 ML/H
Estimated Administration Period: 20 Hours Nurse C, RN Scan Pump Channel \*\*\*\*\*\*\*\* 🛋 Patient, Three , Mr. 100-C Scan Pump Channel Mini-Chart: Allergies

FIG. 38A

-3882 Rx Sodium Chloride 0.9%
Continuous Infusion
Rx Sodium Chloride 0.9%
1000 ML
Route: Intravenous Flow Rate: 50 ML/H
Estimated Administration Period: 20 Hours Select Pump Channel Mode Ploovback (4) Nurse C, RN Patient, Three, Mr. 100-C Select Pump Channel Mode: Mini-Chart : Allergies Primary 3884

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Method and System for Medical Device Confirmation

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Patient, One
Rm - Bed 101-B
Dr. One (111)111-1111 ext. 1
Pharm & Pump Comparison
Ancef 1g, in Dextrose, 5% 50 mL
run at 100 mL/hr
Rate 100 mL/hr 100 mL/hr
Comparison MATCHES.
Press "Start' Key on pump.

FIG 39A

Patient, Three, Mr.

1 West: 100-C
MD1, Test
Pharm & Pump Comparison
Program intusion Rx Sodium Chloride 0.9% 1000 ML Route: intravenous Floy Bate: 50 ML If Estimated Administration Period: 20 Hours
Program the Pump Channel and:

> If this is a PRIMARY 
Cilck COMPARE below Now and wait until instructed to start pump channel.

Press the "start" key on the pump Now, then Click COMPARE pump Now than Pricky Baced Lower Primary Handy Back and that Pricky Back roller clamp 4-07 En.

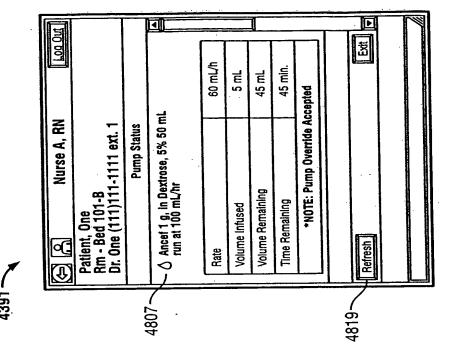
FIG. 39

3986

Patient, One
Rm - Bed 101-B
Dr. One (111)111-1111 ext. 1
Pharm & Pump Comparison
Ancet 1 g, in Dextrose, 5% 50 mL
run at 100 mL/hr
Rate 100 mL/hr
Cannot Compare.
Press "Rate" key and COMPARE.

FIG. 41

4087



Cannot Compare. Press "Start" key on pump and click COMPARE, to retry comparison.

4817

? mL/hr

100 mL/hr

Rate

Pump Settings

Pharm Label

Pharm & Pump Comparison

Patient, One Rm - Bed 101-B Dr. One (111)111-1111 ext. 1

Nurse A, RN

Ancef 1 g, in Dextrose, 5% 50 mL run at 100 mL/hr

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Communication Loss Alert for the following Patients If a Yellow light is flashing on the WIRELESS MODULE and it is beeping, the system may be down. Call IT or Biomed. Plug in and turn on all pumps. If that does not resolve the problem, Call IT or Blomed. Nurse A, RN Patient, Three Patient Patient, One Patient, Two Trouble Shooting Tips: X M  $\boxtimes$ Rm - Bed - 0B -101 - D 101 - B 101 - C

FIG. 45A

Patient, One
Rm - Bed 101-B
Dr. One (111)111-1111ext. 1
Flow Rate History

Ancef 1 g, in Dextrose, 5% 50 mL
run at 100 mL/h
60 mL/h @ 10:55 AM 3/13
70 mL/h @ 10:54 AM 3/13
80 mL/h @ 10:54 AM 3/13

**1G.** 44

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Log Out 盏 Œ Low Battery Alert for the following Patients Patient, One Nurse A, RN Plug WIRELESS MODULE into power outlet. X 9 Patient Less than 30 minutes of battery left in WIRELESS MODULE. Œ Rm - Bed 101 - B Refresh 1

FIG. 46

100 Out Exit Communication Loss Alert for the following Patients If a Yellow Ilght is flashing on the WIRELESS MODULE and it is beeping, the system may be down. Call IT or Blomed. Plug in and turn on all pumps, If that does not resolve the problem, Call IT or Blomed. Nurse A, RN **Patient** Trouble Shooting Tips: Rm - Bed - 0R-<u>р-101</u> Refresh

FIG. 45B

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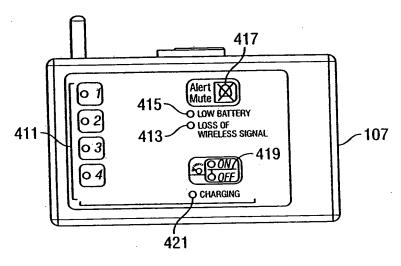


FIG. 47

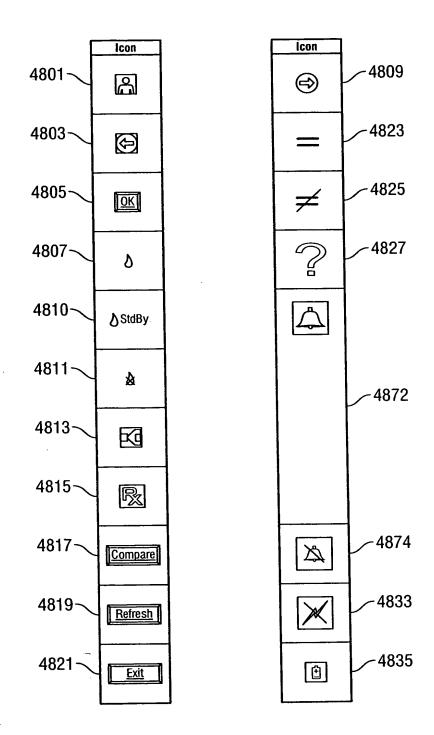
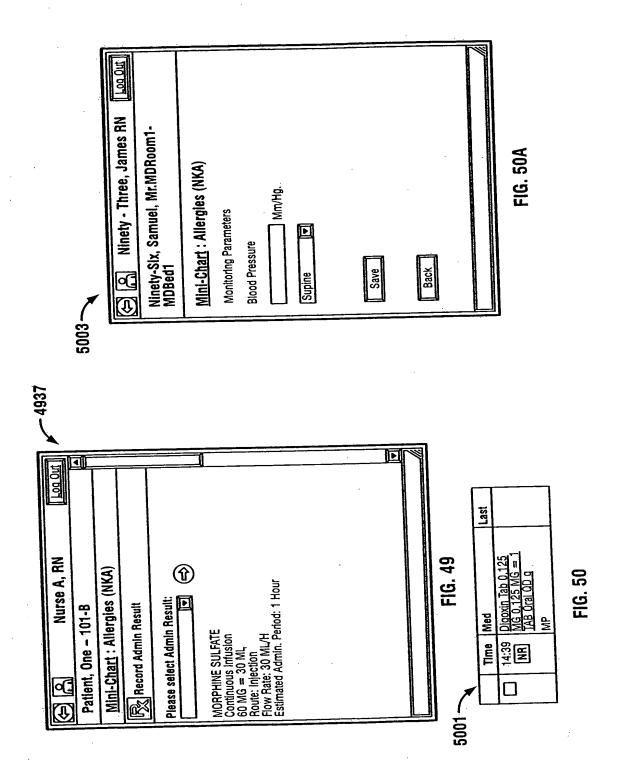


FIG. 48



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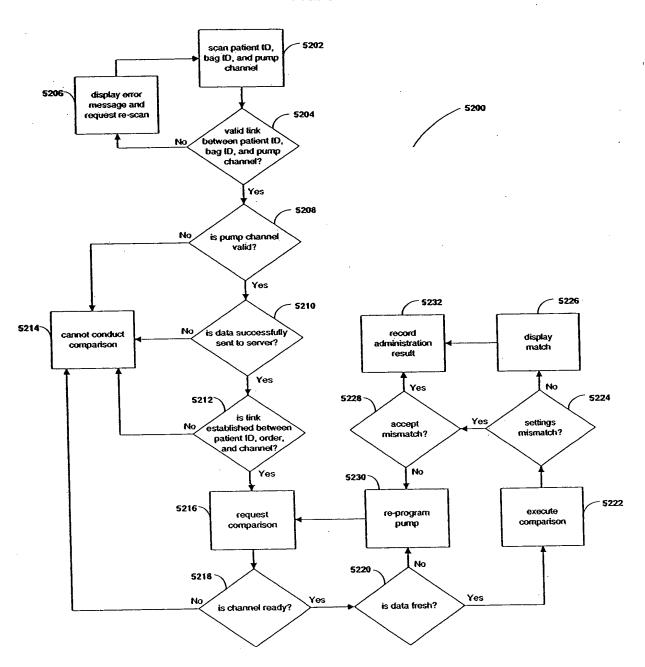
5101 —

Ninety-Three, James RN	<u>Log Out</u>
Eightytwo, Anthony, MDRoom1- MDDefaultBed	
Mini-Chart: Allergies	
ACETAMINOPHEN/CODEINE #4 Acetaminophen w/ Codeine Tab 300-60 MG 60 MG = 1 TAB Oral QID	
Drawer 1, Bin 05	
Count before the removal of medication(first count)	
Qty on hand: TAB(s)	
Count	
Back to Patient List  Re-open drawer	

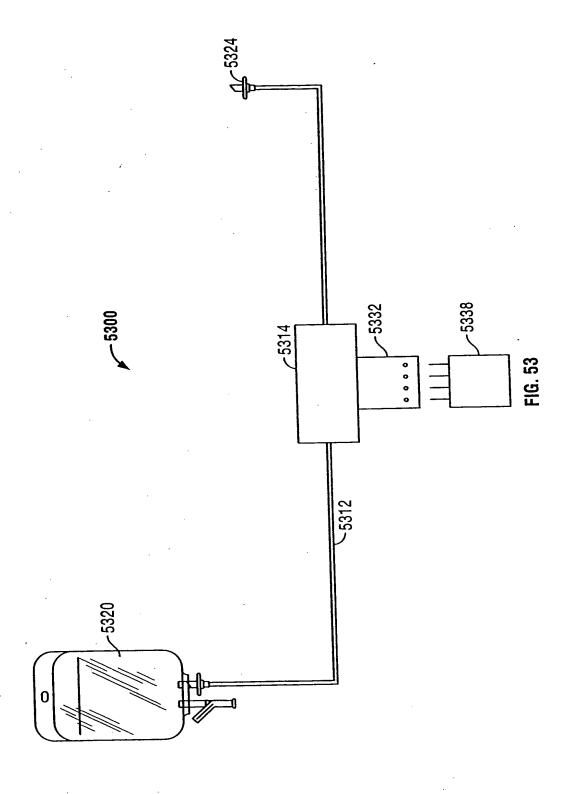
FIG. 51

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FIG. 52



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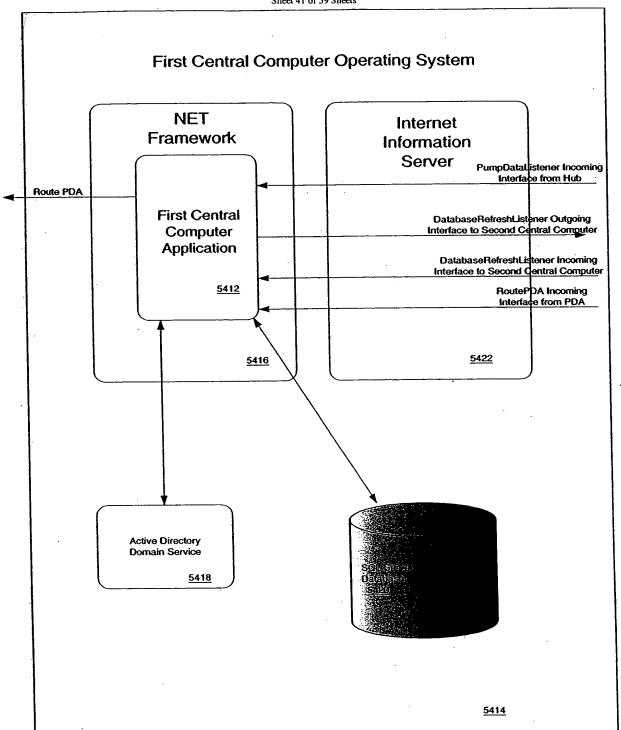
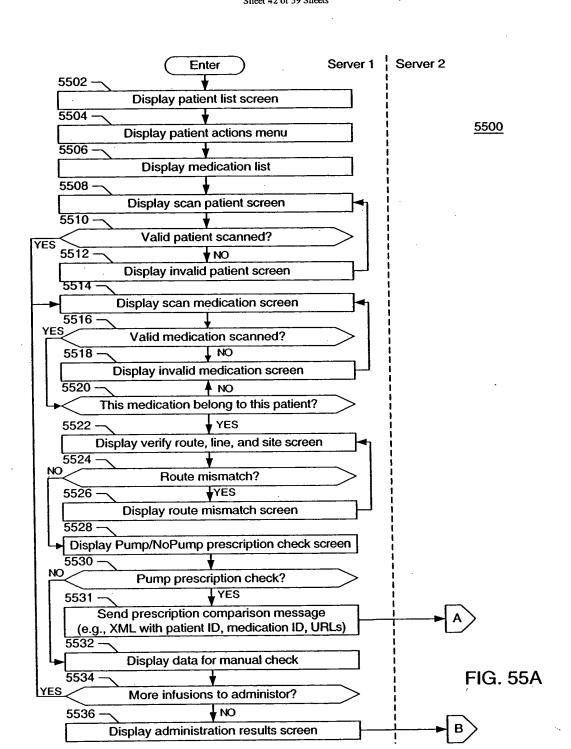
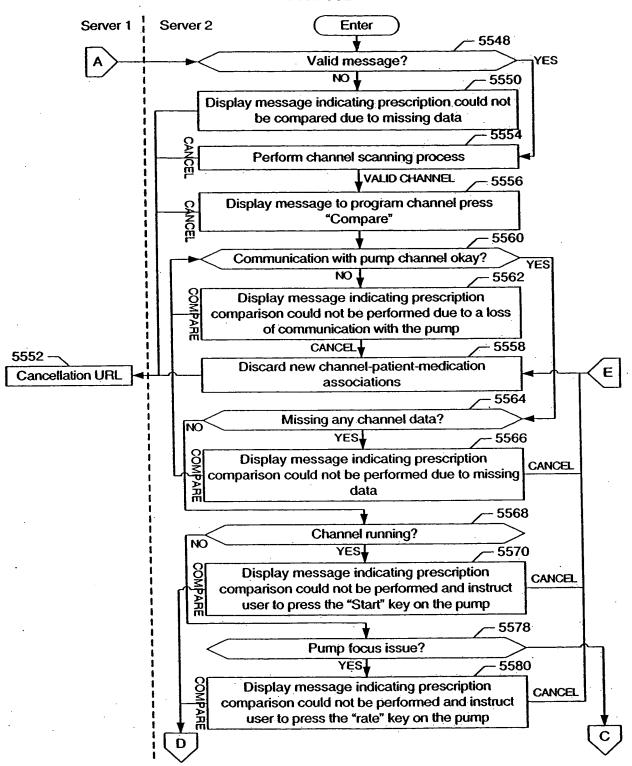


FIG. 54

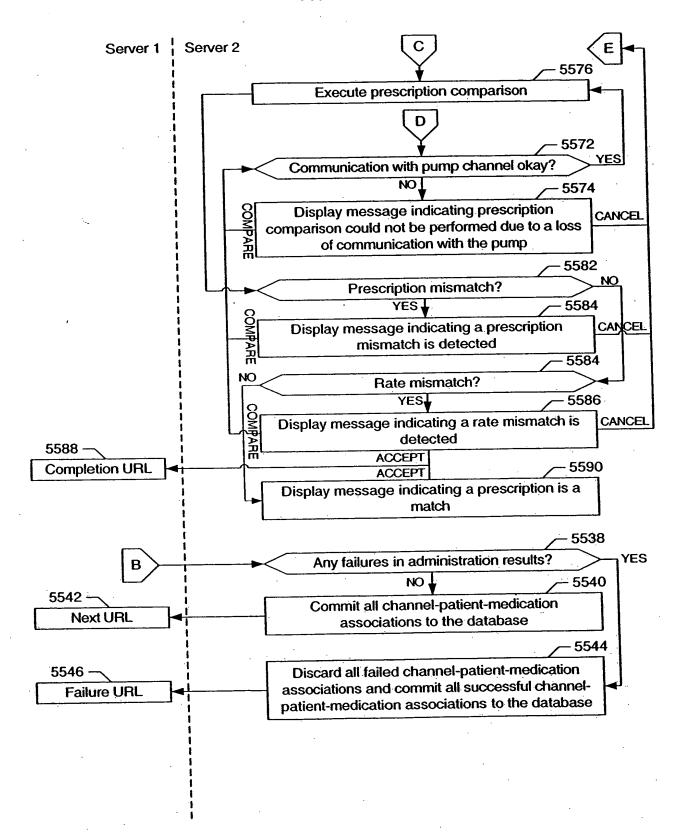
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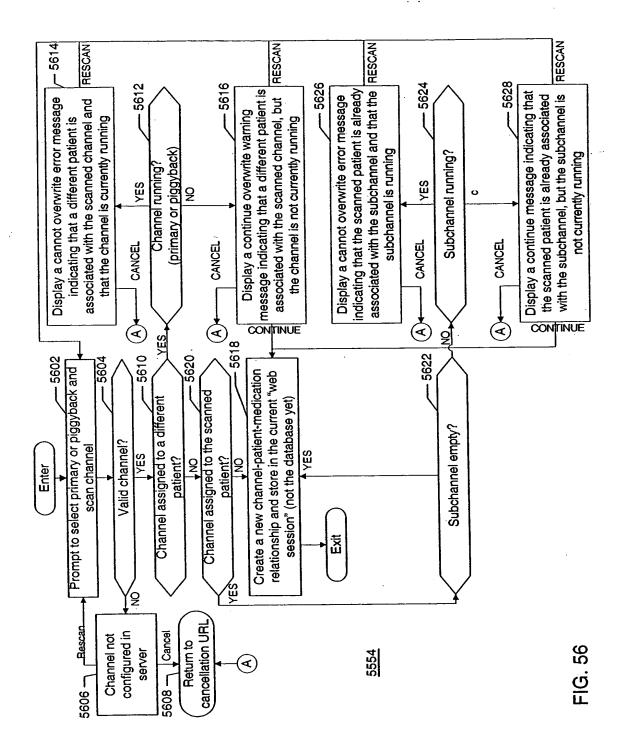


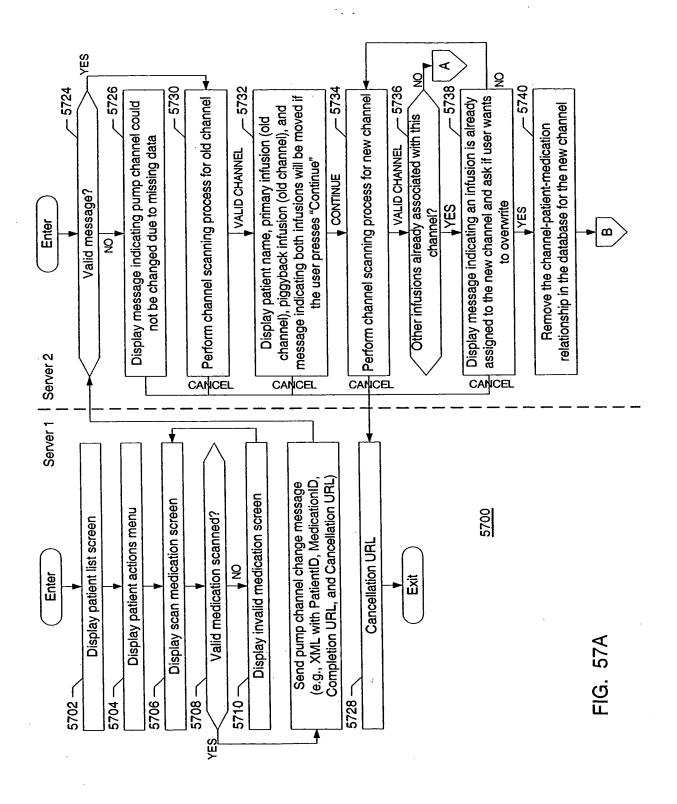
**FIG. 55B** 

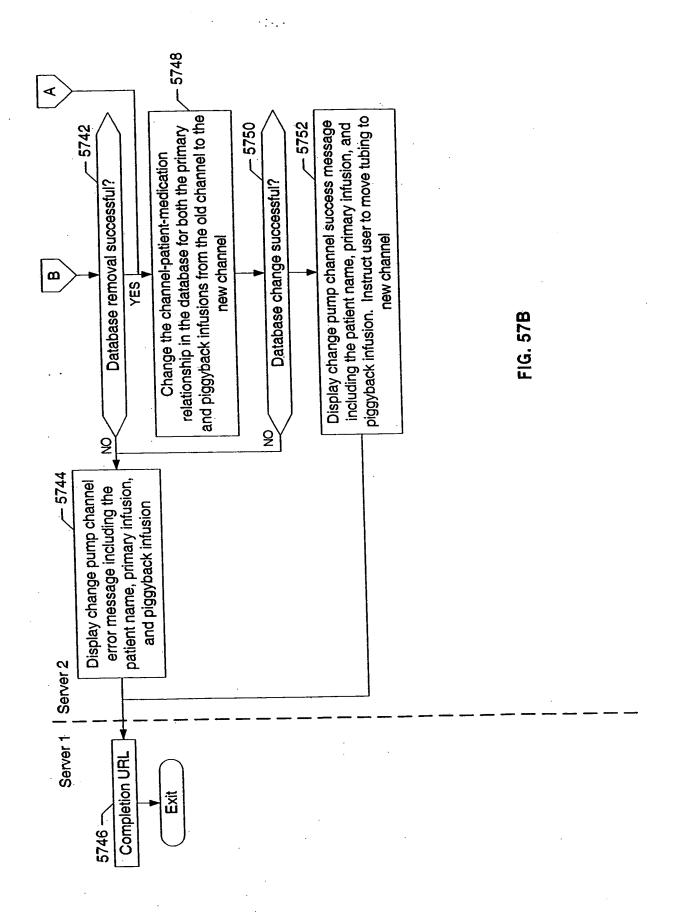


**FIG. 55C** 









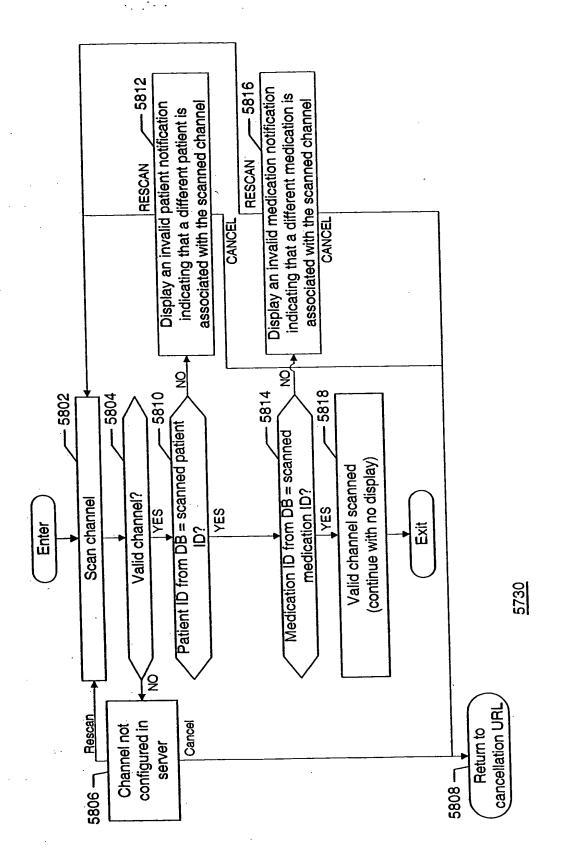
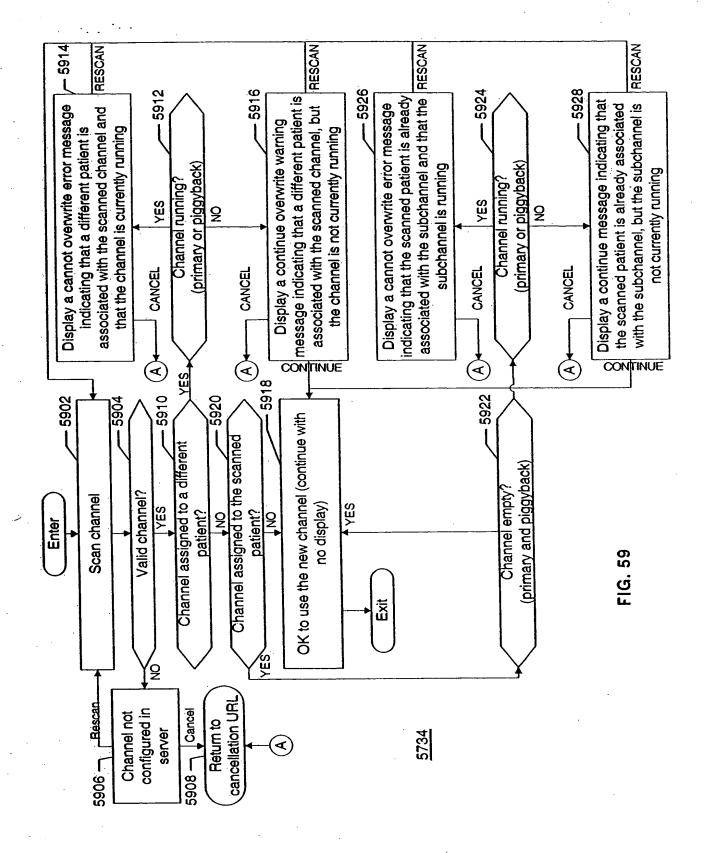
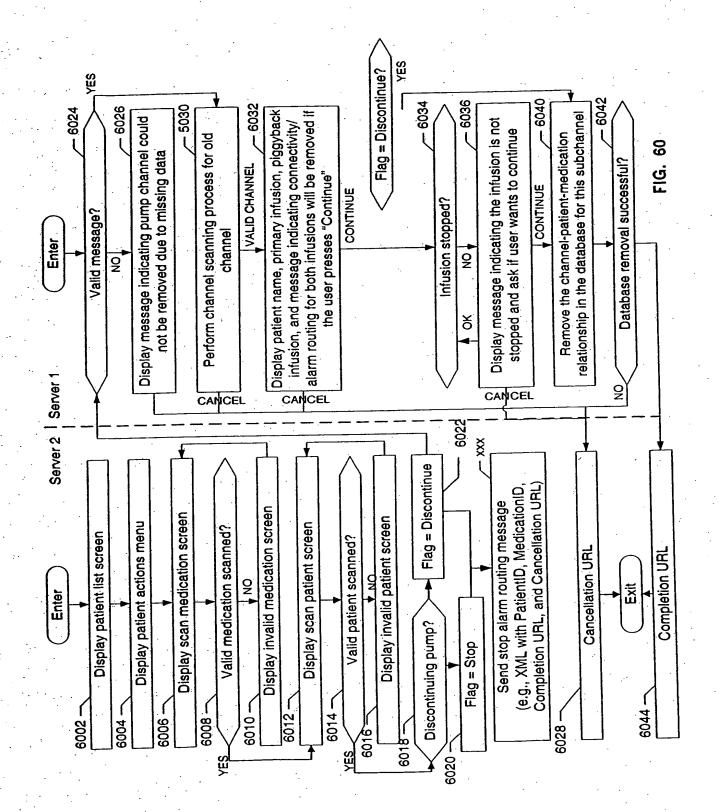
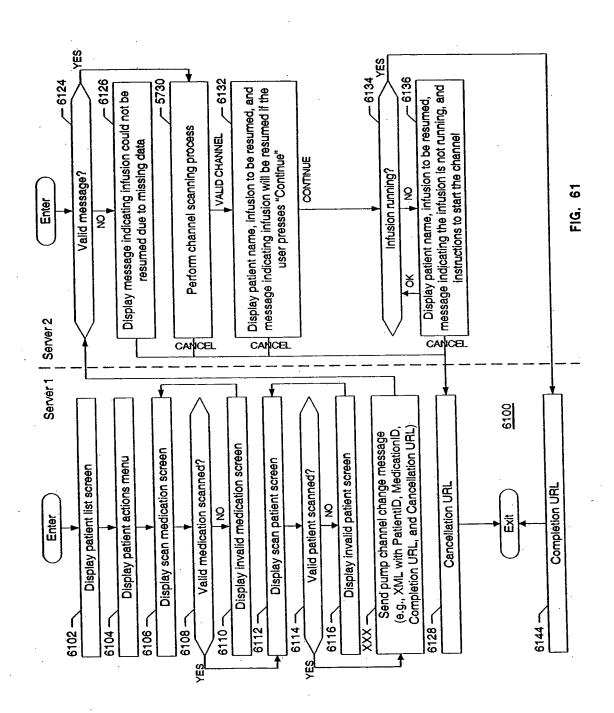
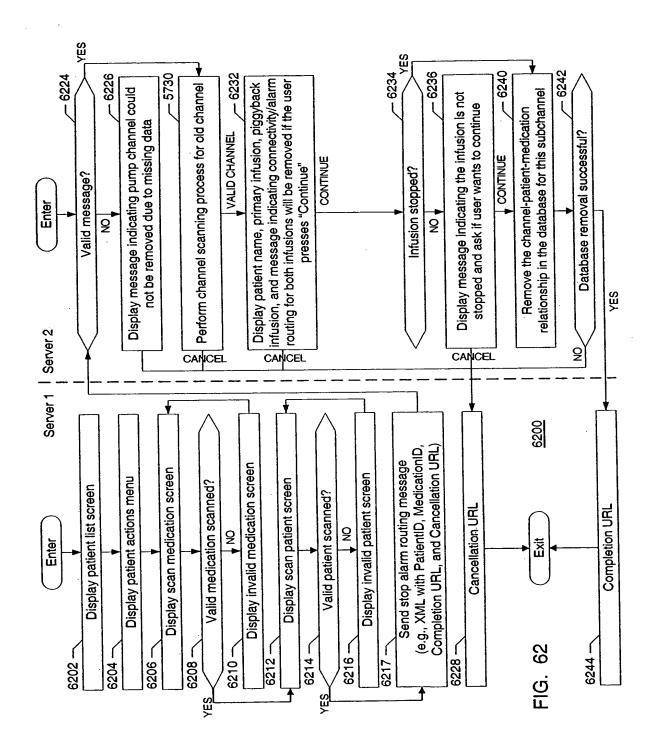


FIG. 58

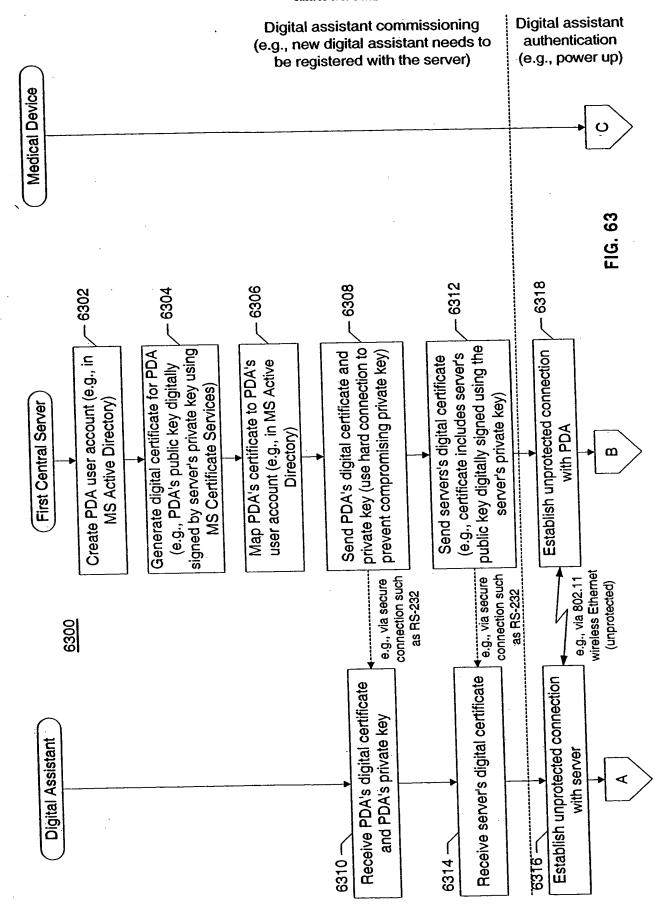




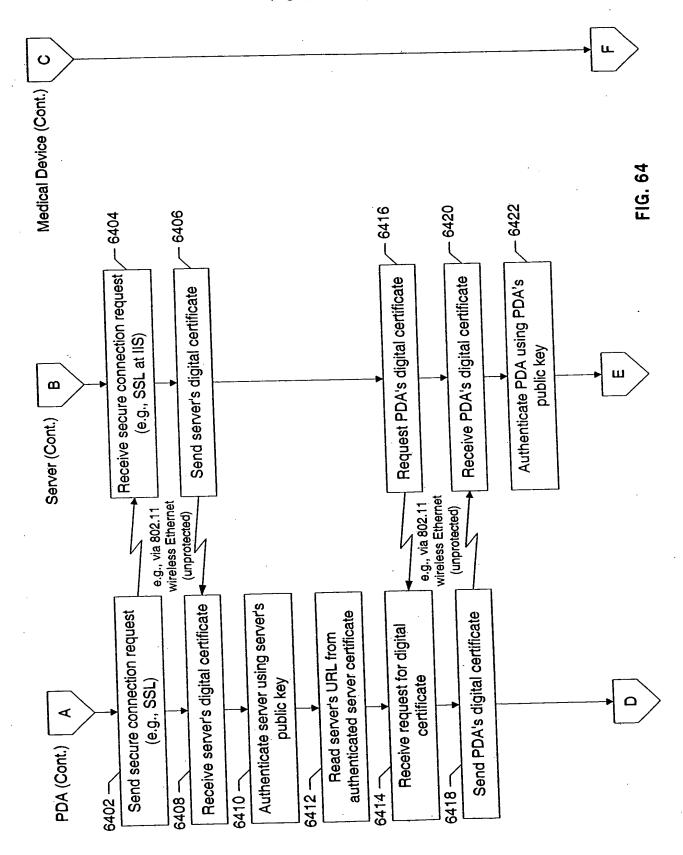


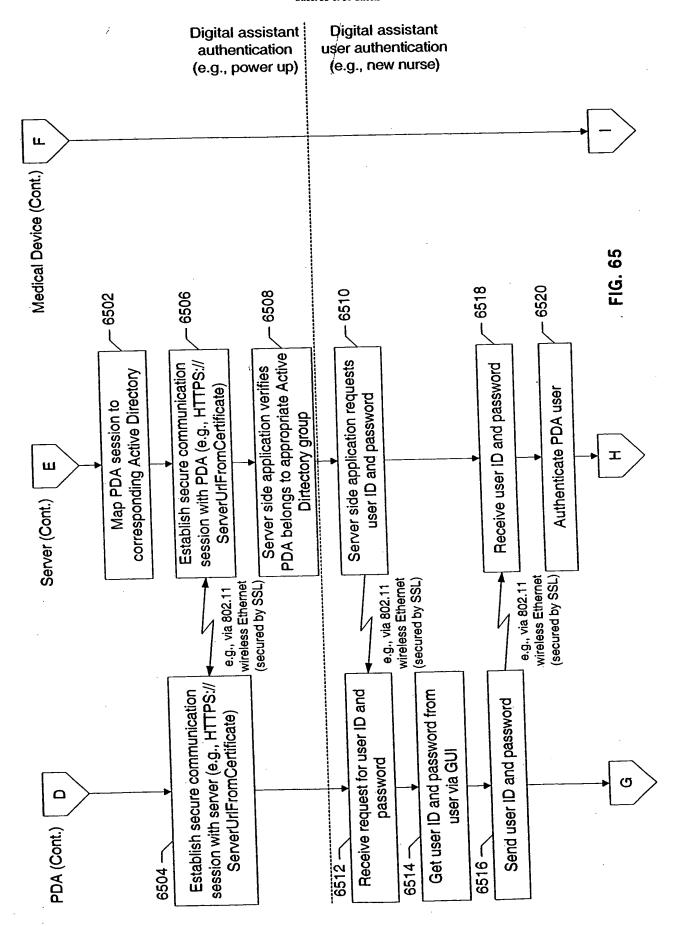


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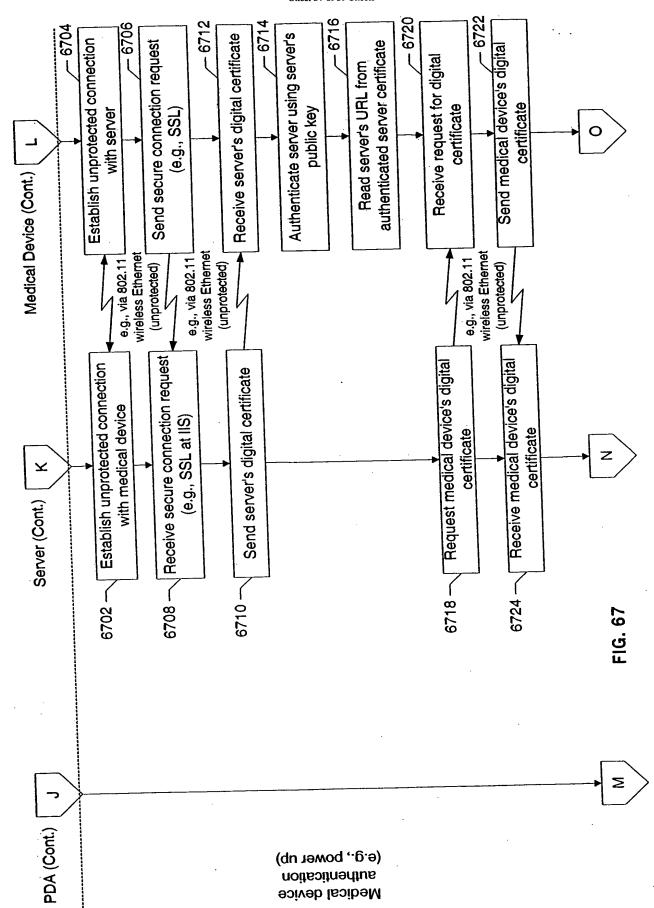
## Digital assistant authentication (e.g., power up)





Title: Method and System for Medical Device Connectivity Sheet 56 of 59 Sheets 6614 6610 Receive server's digital certificate Receive medical device's digital certificate and private key Medical Device (Cont.) e.g., via RS-232 e.g., via RS-232 FIG. 66 public key digitally signed using the certificate and private key (use hard Map medical device's certificate to (e.g., certificate includes server's device's user account (e.g., in MS Send servers's digital certificate Send medical device's digital medical device (e.g., device's Generate digital certificate for server's private key using MS public key digitally signed by compromising private key) Create medical device user account (e.g., in MS Active connection to prevent server's private key) Certificate Services) Active Directory) Directory) Server (Cont.) 6612 -<del>-</del> 9099 - 8099 6604 6602 PDA (Cont.) registered with the server) (e.g., new pump needs to be Medical device commissioning

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Inventors: Dan M. Mihai et al. Application No.: 10/748,749 Confirmation No.: 2669 Title: Method and System for Medical Device Connectivity Sheet 58 of 59 Sheets -68169089 681 session with server (e.g., HTTPS:// Receive request for user ID and Establish secure communication Get user ID and password from ServerUrlFromCertificate) password user wireless Ethernet (secured by SSL) wireless Etheme (secured by SSL) e.g., via 802.11 e.g., via 802.11 PDA belongs to appropriate Active Server side application requests session with PDA (e.g., HTTPS:// Authenticate medical device using Establish secure communication Server side application verifies corresponding Active Directory medical device's public key ServerUrlFromCertificate) user ID and password Map PDA session to Dirtectory group €808 → FIG. 68 6810 -6812 6804 6802

